WHAT IS CLAIMED IS:

1. A method for compensating for clock signal difference between a switch and a peripheral device, the switch comprising a first counter and a second counter, the switch being used for receiving and transmitting a plurality of packets, wherein each of the packets corresponds to a queue link node, an N-th packet corresponds to an N-th queue link node QLN(N) and an M-th packet corresponds to an M-th queue link node QLN(M), where N and M are integers, the method comprising:

a receiving process, the receiving process comprising the steps of:

(a) receiving the N-th packet;

(b) triggering the first counter;

(c) performing a counting operation by the first counter;

(d) proceeding to step (e) when an (N+1)-th packet is inputted to the switch, otherwise proceeding to said step (c);

(e) stopping the first counter and then recording an inter-packet gap IPG(N, N+1) between the N-th packet and the (N+1)-th packet into the (N+1)-th queue link node QLN(N+1) according to a counting value by the first counter; and

(f) increasing N by one and then repeating from said step (b) to said step (f); and

a transmitting process, the transmitting process comprising the steps of:

(a1) reading the M-th queue link node QLN(M) corresponding to the M-th packet for obtaining an inter-packet gap IPG(M-1, M), and then transmitting the M-th packet;

(b1) triggering the second counter;

(c1) performing a counting operation by the second counter;

(d1) stopping the counting operation of the second counter when a counted value by the second counter is equal to a clock cycle value corresponding to the inter-packet gap IPG(M-1, M), otherwise repeating said step (c1);

(e1) reading an (M+1)-th queue link node QLN(M+1) corresponding to an (M+1)-th packet for obtaining an inter-packet gap IPG(M, M+1), and then transmitting the (M+1)-th packet; and

(f1) increasing M by one and then repeating from said step (c1) to said step (f1).

2. The method of claim 1, wherein the switch further comprises a receive media access control (RMAC) unit for receiving the packets and a transmit media access control (TMAC) unit for transmitting the packets.

3. The method of claim 2, wherein the first counter is in the RMAC unit and the second counter is in the TMAC unit.

4. The method of claim 1, wherein the N-th queue link node QLN(N) comprises:

a first field for recording a memory address for temporally storing the (N+1)-th packet;

a second field for recording a destination port of the N-th packet;

a third field for recording a size of the N-th packet; and

a fourth field for recording an inter-packet gap IPG(N-1, N).

5. The method of claim 4, wherein the N-th queue link node QLN(N) further comprises a fifth field for recording a source port speed of the N-th packet.

6. The method of claim 1, wherein the N-th queue link node QLN(N) comprises:

a first field for recording a memory address for temporarily storing the (N+1)-th packet;

a second field for recording a destination port of the N-th packet;

a third field for recording a size of the N-th packet; and

a fourth field for recording a clock cycle value corresponding to 96 bit time minus the inter-packet gap IPG(N-1, N).

7. The method of claim 6, wherein the N-th queue link node QLN(N) further comprises a fifth field for recording a source port speed of the N-th packet.

8. The method of claim 1, wherein the peripheral device is a test device.

9. A method for compensating for clock signal difference between a switch and a peripheral device, the switch comprising a receive media access control (RMAC) unit for receiving a plurality of packets, a transmit media access control (TMAC) unit for receiving the packets, a first counter and a second counter, the switch being used for receiving and transmitting a plurality of packets, wherein each of the packets corresponds to a queue link node, an N-th packet corresponds to an N-th queue link node QLN(N), and an M-th packet corresponds to an M-th queue link node QLN(M), where N and M are integers, the method comprising:

a receiving process, the receiving process comprising the steps of:

(a) proceeding to step (b) when the N-th packet is inputted to the switch, otherwise repeating said step (a);

(b) proceeding to step (c) when the switch completely receives the N-th packet;

(c) triggering the first counter;

(d) performing a counting operation by the first counter;

(e) proceeding to step (f) when an (N+1)-th packet is inputted to the switch, otherwise proceeding to said step (d);

(f) stopping the first counter and then recording an inter-packet gap

IPG(N, N+1) between the N-th packet and the (N+1)-th packet into the (N+1)-th queue link node QLN(N+1) according a counting value by the first counter; and

(g) increasing N by one and then repeating from said step (b) to said step (g); and

a transmitting process, the transmitting process comprising the steps of:

(a1) proceeding to step (b1) when an M-th packet in the switch waits to be transmitted;

(b1) reading the M-th queue link node QLN(M) corresponding to the M-th packet for obtaining an inter-packet gap IPG(M-1, M), and then transmitting the M-th packet;

(c1) triggering the second counter;

(d1) performing a counting operation by the second counter;

(e1) proceeding to step (f1) when a counted value by the second counter is equal to a clock cycle value corresponding to the inter-packet gap IPG(M-1, M), otherwise repeating said step (d1);

(f1) proceeding to step (g1) when an (M+1)-th packet in the switch waits for being transmitted, otherwise repeating said step (f1);

(g1) stopping the counting operation of the second counter and reading

an (M+1)-th queue link node QLN(M+1) corresponding to an (M+1)-th packet for obtaining an inter-packet gap IPG(M, M+1), and then transmitting the (M+1)-th packet; and

(h1) increasing M by one and then repeating from said step (c1) to said step (h1).

10. The method of claim 9, wherein the first counter is in the RMAC unit and the second counter is in the TMAC unit.

11. The method of claim 9, wherein the packets inputted to the switch are temporarily stored in a memory.

12. The method of claim 9, wherein the N-th queue link node QLN(N) comprises:

a first field for recording a memory address for temporarily storing the (N+1)-th packet;

a second field for recording a destination port of the N-th packet;

a third field for recording a size of the N-th packet; and

a fourth field for recording an inter-packet gap IPG(N-1, N).

13. The method of claim 9, wherein the N-th queue link node QLN(N) comprises:

a first field for recording a memory address for temporally storing the (N+1)-th packet;

a second field for recording a destination port of the N-th packet;

a third field for recording a size of the N-th packet; and

a fourth field for recording a clock cycle value corresponding to 96 bit time minus the inter-packet gap IPG(N-1, N).

~~14. The method of claim 12 or 13, wherein the N-th queue link node QLN(N) further comprises a fifth field for recording a source port speed of the N-th packet.~~

15. The method of claim 9, wherein the peripheral device is a test device.

16. An apparatus for transceiving a plurality of packets, wherein each of the packets corresponds to a queue link node, an N-th packet corresponds to an N-th queue link node QLN(N), and an M-th packet corresponds to an M-th queue link node QLN(M), where N and M are integrals, the apparatus comprising:

a first counter and a second counter;

a receive media access control (RMAC) unit for receiving the packets, wherein the RMAC unit is used for triggering the first counter to obtain an inter-packet gap IPG(N, N+1) between the N-th packet and the (N+1)-th packet, and then recording the inter-packet gap IPG(N, N+1) into an (N+1)-th queue link node QLN(N+1); and

a transmit media access control (TMAC) unit for transmitting the packets, wherein the TMAC unit is used for reading the M-th queue link node QLN(M) corresponding to the M-th packet for obtaining an inter-packet gap IPG(M-1, M), and then transmitting the M-th packet, and then triggering the second counter, wherein when a counted value by the second counter is equal to a clock cycle value corresponding to the inter-packet gap IPG(M-1, M), an (M+1)-th queue link node QLN(M+1) corresponding to an (M+1)-th packet is read for obtaining an inter-packet gap IPG(M, M+1), and then the (M+1)-th packet is transmitted.

17. The apparatus of claim 16, wherein the first counter is in the RMAC unit and the second counter is in the TMAC unit.

18. The method of claim 16, wherein the N-th queue link node QLN(N) comprises:

a first field for recording a memory address for temporally storing the (N+1)-th packet;

a second field for recording a destination port of the N-th packet;

a third field for recording a size of the N-th packet; and

a fourth field for recording the inter-packet gap IPG(N-1, N).

19. The method of claim 16, wherein the N-th queue link node QLN(N) comprises:

a first field for recording a memory address for temporally storing the (N+1)-th packet;

a second field for recording a destination port of the N-th packet;

a third field for recording a size of the N-th packet; and

a fourth field for recording a clock cycle value corresponding to 96 bit time minus the inter-packet gap IPG(N-1, N).

~~20. The method of claim 18 or 19, wherein the N-th queue link node QLN(N) further comprises a fifth field for recording a source port speed of the N-th packet.~~

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